GLOSSARY of TERMS and ACRONYMS

Abiotic: Nonliving; usually referring to the physical and chemical components of the environment such as water, rocks and mineral soil.

Access: A means of passage to land owned, rented, or leased.

Adaptive administration: A methodology, which extends the principles of adaptive management to the institutional framework necessary to achieve adaptive management. It includes analysis, review and modification of organizational structure and function to strive to best implement ecosystem management. It further includes analysis, review and modification of underlying laws, mission and policies that direct the administration of ecosystem management.

Adaptive management: A type of natural resource management that implies making decisions as part of an on-going process. Monitoring the results of actions will provide a flow of information that may indicate the need to change a course of action. Scientific findings and the needs of society may also indicate the need to adapt resource management to new information.

A process of implementing policy decisions as scientifically driven management experiments that test predictions and assumptions in management plans, and using the resulting information to improve the plans.

A process that combines democratic principles, scientific analysis, educational and institutional learning to manage resources sustainably in an environment of uncertainty.

A formal structured approach to dealing with uncertainty in natural resource management, using the experience of management as an ongoing, and continually improving process.

Advisory committee (Depolarizing Interests): Communication technique which uses a committee to depolarize interests who are at each other's throats and to build consensus among them.

Advisory committee (Content-Type Advice): Communication technique which allows a project committee to listen, evaluate and apply information from the public to the problem solving effort.

Aesthetics: The description and explanation of artistic phenomena and aesthetic experience by means of other sciences (as psychology, sociology, ethnology or history).

Anthroprogenic: Of, relating to, or involving the impact of man on nature.

Aquifer: A water-bearing stratum of permeable rock, sand or gravel.

Basin/Watershed: Geographic areas from which all water (i.e. precipitation runoff, irrigation channels, groundwater, ditches, rivers, lakes, etc.) flows toward and drains through a single common outlet. As water travels over land and through various water channels in a watershed, the quality and quantity of that water is affected by local environmental conditions; therefore management of aquatic ecosystems must consider watershed characteristics. The river or body of water that serves as the outlet or receiver of the water often identifies basins and watersheds.

Benthic: Of, relating to, or occurring at the bottom of a body of water.

Biological diversity (biodiversity): The spectrum of life forms and the ecological processes that support and sustain them. Biological diversity occurs at four interacting levels: genetic, species, community, and ecosystem.

The variety of living organisms considered at all levels of organization, from genetics through species, to higher taxonomic levels, also; the term encompasses the variety of habitats and ecosystems supporting the organisms, as well as the processes occurring within those systems.

Biodiversity (biological diversity): The variety of life on earth.

Biome: The community of living organisms in a given area characterized by similar plant life and climate.

Biosphere: The relatively thin layer of the earth's surface where life exists.

Biotic: Pertaining to life or living organisms; caused or produced by or comprising living organisms.

Board foot: A measurement term for lumber or timber. It is the amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.

Bogs and Fens: Wetlands found in northern areas that accumulate peat, a spongy soil made up mostly of partially decomposed plants.

Buffer: A land area that is designated to block or absorb unwanted impacts to the area beyond the buffer.

Clear cut: A harvest in which all or almost all of the trees are removed in one cutting.

Climax: The culminating stage in plant succession for a given site. Climax vegetation is stable, self-maintaining, and self-reproducing.

Collaborative decision-making: Making decisions by consensus through equal input and open discussion by all parties involved and/or concerned.

Community: An assemblage of species living together in a particular area, at a particular time, in a prescribed habitat. Communities usually bear the name of their dominant plant species, but include all the microbes, plants, and animals living in association with the dominant plant species at a given time.

Community: A grouping of organisms which exist in the same general place and have mutual interactions.

Community: A group of living things that share the same living area and resources.

Conservancy: An organization whose mission, using a science-based planning process, is to preserve extraordinary natural communities that represent the diversity of life on Earth.

Conservation of Biological Diversity: Biological diversity refers to the variety found among species in number (how many species) and abundance (how many of each species) in a common environment. This variety can be measured at the genetic, species, ecosystem, and landscape levels. Conservation of biological diversity is making sure this variety and abundance of species continues on in a healthy and productive state.

Conservation easement: A voluntary, legally binding agreement that limits certain types of uses or prevents development from taking place on a piece of property now and in the future, while protecting the property's ecological or open-space values.

Consumptive recreation: The use of recreational resources that reduces the supply, such as rock hounding or plant gathering.

Consumptive use: Use of resources that reduces the supply, such as logging and mining.

Continuum: The range of understanding and/or practice of ecosystem management that exists between people who manage natural resources and those who want to influence natural resource management.

Corridor: A defined tract of land connecting two or more areas of similar management or habitat type that allows movement of species to facilitate reproduction and other life sustaining needs.

Small reserves of natural habitat that link larger reserves so that species can move from one area to another.

Criteria: A category of conditions, processes, or values that assess sustainable resource management. Criteria should be without direction. They should provide a sense of the relative importance society places on resource values or uses. They should capture a wide range of values, including ecological, social, and economic values.

Cultural shift: The change needed in employee's views of values, processes, and procedures to effectively implement ecosystem management.

Department Management Team: Team composed of all the MDNR Division Chiefs who meet periodically to plan and discuss policy, coordination, cooperation and implementation of Department programs.

Desired future condition: Land or resource conditions that are expected to result if goals and objectives are fully achieved.

Developed recreation: Recreation that requires facilities that, in turn, result in concentrated use of the area.

Dialogue: Exchange of ideas or opinions.

Disturbance: The disruption in growth of an individual, population, or community of species due to natural or anthropogenic (human) factors such as herbivory, forest fires, road building, disease infestation, and tree harvesting**.**

Dispersed recreation: Recreation taking place outside of developed sites.

Drumlin: An elongate or oval hill of glacial drift.

Dynamic: The ever changing nature of ecosystems and ecosystem components in time and space.

Dynamism: Process or mechanism responsible for the development or motion of a system.

Ecology: The study of organisms or groups of organisms to their environment, both biotic and abiotic. A study of their linkages.

Ecological Cycles: Ecological cycles are the various self-regulating processes that recycle the earth's limited resources – water, carbon, nitrogen, and other elements - that are essential to sustain life. Understanding how local cycles fit into global cycles is essential to make the best possible management decisions to maintain ecosystem health and productivity for now and the future.

Economic Health: A wide range of goods and services are provided to the people of the NLP by and from the management of the natural resources. These goods and services create jobs and economic stability to the region.

Ecosystem: A dynamic and natural complex of living organisms interacting with each other and with their associated nonliving elements in the environment.

Ecosystem: Ecosystem is a combination of two words: ecology and system. *Eco* means habitat or home; *system* refers to the interdependent way the living and non-living parts of a community fit together.

Ecosystem Condition and Productivity: Ecosystem condition is a measure of the health of an ecosystem – how stress free it is. Ecosystem productivity refers to the rate of production of organic matter within an ecosystem. This results from the interactions between the plants and animals and nonliving factors such as soil, water, and climate. Sustainable productivity is dependent on the ability of an ecosystem to recover or change following disturbances whether natural or human caused. A healthy and diverse ecosystem can better respond to and recover from changes to its environment.

Ecosystem management: A process that integrates physical, chemical, biological, and ecological principles, along with economic and social factors, into a comprehensive strategy aimed at protecting and enhancing sustainability, diversity, and productivity of a system.

Ecoregion: Areas of relatively homogeneous ecological systems. Ecoregions are usually based on patterns of land use, topography, present and potential natural vegetation and soils. Ecoregion designations are used by resource managers to develop logical, regional strategies for land acquisition and management.

Eco-unit: Geographic areas containing similar ecological patterns and processes whose boundaries closely align with Michigan's Eco-Regions. They were established by the DNR for organizing and administering assessment, planning, facilitating, and updating of regional ecosystem management activities. Four eco-units were established: Western Upper Peninsula. Eastern Upper Peninsula, Northern Lower Peninsula, and Southern Lower Peninsula. These four eco-units apply to all Divisions. Representatives from each division will contribute to regional ecosystem planning, assessment, and monitoring at the eco-unit level.

Eco-Unit Team: A team of DNR employees composed primarily of Management Unit Supervisors from each division along with additional support personnel who are mandated to plan and coordinate ecosystem management in an eco-unit.

Endangered species: Any plant or animal species defined through the Endangered Species Act of 1976 as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register. Also, a species facing imminent extinction or extirpation.

Endemic: Native to a particular plane and found only there.

Environmental Impact Statement: A statement of environmental effects of a proposed action and alternatives to it.

Esker: A long narrow ridge or mound of sand, gravel and boulders deposited by a stream flowing on, within, or beneath a stagnant glacier.

Even aged management: Timber management actions that result in the creation of stands of trees in which the trees are essentially the same age.

Evenness: Number of species and distribution (richness).

Exotic: A plant or animal species introduced from another country or geographic region outside its natural range.

Extirpation: Local extinction of a species from an area.

Extinct: When one type of animal or plant species completely disappears from the earth.

Forest: An ecosystem characterized by a more or less dense and extensive tree cover, often consisting of stands varying in characteristics such as species composition, structure, age class, and associated processes, and commonly including meadows, streams, fish, and wildlife.

A plant community or predominantly trees and other woody vegetation growing more or less closely together, its related flora and fauna, and the values attributed to it.

Forest dependent species: A species that depends on a forested ecosystem (or forested ecosystems) for some portion of its life cycle (such as dispersal, migration, breeding, nesting, foraging, or hibernation).

Forest health: A measure of the robustness of forest ecosystems. Aspects of forest health include biological diversity; soil, air and water productivity; natural disturbances; and the capacity of the forest to provide a sustaining flow of goods and services for people.

Forest Values: Principal standards or qualities of the forest considered worthwhile or desirable.

Forum: Technique designed to air certain issues, to hear different points of view expressed, to shed light on a subject, to make sure everyone has a chance to be heard – but not to make any decisions.

Fragmentation: The breaking up of large and continuous ecosystems, communities, and habitats into smaller areas surrounded by altered or disturbed land or aquatic substrate.

The disruption of extensive habitats into isolated and small patches. Fragmentation has two negative components of biota: loss of total habitat area, and smaller, more isolated remaining habitat patches.

The breakdown of once continuous habitats, ecosystems, or landscapes into discontinuous units. May result from human or natural disturbances.

Gauges: Indicators that can only be monitored. In contrast, levers can be managed directly.

Geographic Information System (GIS): A system of computer hardware and software that can input, manipulate, and analyze large amounts of geographically referenced data to support the decision-making process of an organization.

A computer–based information system that uses a spatial database to provide answers to questions of a geographic nature. Information is retrieved via manipulations such as layering, sorting, selective retrieval calculation, spatial analysis, and modeling.

Genotype: Genetic constitution.

Geographically referenced data: Information that is spatially keyed to a coordinate system for the earth so that different data layers (or maps) can be overlaid or integrated.

Geophysical: The physical properties of the earth including, meteorology, seismology, etc.

Glacial erratic: Irregular or uneven movement of a glacier.

Glacial land forms: Land formations derived from a glacier.

Habitat: The place where an organism lives and its surrounding environment including its biotic and abiotic components. Habitat includes everything an organism needs to survive.

Habitat: The place where a plant or animal naturally lives or grows – where it finds everything it needs to live.

Habitat type: A way to classify land area. A habitat type can support certain climax vegetation, both tree and undergrowth species. Habitat typing can indicate the biological potential of a site.

Heterogenous: Made up of people or things that are unlike each other.

Holistic management: Approach to managing natural resources that acknowledges and incorporates management plans and actions jointly between diverse groups responsible for specific components of ecosystems. This approach allows maintenance of ecosystem structure and process on a variety of geographical and/or temporal scales. Public involvement and human needs are integral to this approach.

Homogeneous: Of the same kind as the others, formed of parts that are all of the same kind.

Hot Line: Communication technique which establishes one specific telephone number as a direct link between the team and the public.

Indicators: Measurable or describable characteristics of a criteria that provides a means for tracking changes in environmental, social, or economic conditions affecting natural resources. Well-chosen indicators are without direction, offering the opportunity to identify the present state, past trajectory, and future trends for a criteria. These characteristics allow resource mangers and citizens to follow the course of an indicator over time and make value judgments about whether the course is positive, neutral, or negative from a societal perspective.

A good indicator should have the following characteristics:
- Measurable
- Understandable
- Feasible
- Appropriate scale to the planning effort
- Relevant
- Compatible with state, regional, and national efforts
- Sensitive to change
- Affordable.

A qualitative or quantitative measure that is capable of showing the status and/or direction of change.

Indicator species: A species that when monitored can provide useful information regarding the status and/or direction of change of the ecosystem in which it occurs.

Informed consent: Grudging willingness of opponents to (grudgingly) go along with a course of action that they actually are still opposed to.

Institutional processes: Those policies, directives, guidelines, and practices that define and guide how an institution operates internally and externally.

Institutional Processes: Institutional processes deal with the legal and institutional framework for the application of ecosystem management. They deal with the policies, legislation, regulations, and guidelines that drive and direct ecosystem practices. They also direct how institutions cooperate with each other in the application of ecosystem management. These processes also examine the quality and quantity of opportunities for public involvement in ecosystem planning leading to resource management decisions.

Interdisciplinary team – A team of individuals with skills from different disciplines that focuses on the same task or project.

Introduced species: A species that is established within an area by anthropogenic means.

Invasive exotic: An exotic species that supplants native species. Species of those plants, animals and microbes not native to a region which, when introduced either accidentally or intentionally, out-compete native species for available resources, reproduce prolifically and dominate regions and ecosystems.

Species of those plants, animals, and microbes not native to a region which, when introduced either accidentally or intentionally, out-compete native species for available resources, reproduce prolifically, and dominate regions and ecosystems.

Issue: Matter of controversy or dispute over resource management activities or plans.

Karst: A region with underground drainage and many cavities caused by dissolution of rock.

Landscape: An area composed of adjacent and interacting ecosystems that are related because of geology, land forms, soils climate, biota, and human influences.

Landscape scale: The appropriate spatial or temporal scale for planning, analysis, and improvement of management activities to achieve ecosystem management objectives.

Levers: indicators that can be managed directly. In contrast, gauges can only be monitored.

Marsh: Wetland where the ground is covered with water for large portions of the year and is populated by soft-stemmed plants that rise above the water surface, such as cattails.

Metric: Means of measuring.

Monitoring: The daily, seasonal, annual or longer-term collection and analysis of environmental and social data.

Multiple use: Management of natural resources in a way that a given unit of land serves more than one use or user group.

Native species: A species that occurs naturally in an ecosystem without having been introduced by humans.

Natural communities:

Non-consumptive use: The use of a resource that does not reduce supply. (i.e. bird watching)

Null-alternative or No action alternative: Sequence of events that most likely will come to pass if no workable solution is implemented.

Old growth: Old forests often containing several canopy layers, variety in tree sizes and species, decadent old trees, and standing and dead woody material.

Open a channel of communication with each PAI (Potentially Affected Interest): Technique designed to communicate with PAIs who may eventually be affected, who believe they have something at stake or who may at some later date chose to become involved in a project.

Open house: Technique designed to allow PAIs the opportunity to ask questions, express concerns, react to what is being proposed and even make suggestions to the technical experts who are responsible for developing a plan or program, in a semi-informal setting which allows for one to one exchanges.

Organism: Any form of life.

Ownership patterns: The pattern across a landscape when land is identified by ownership (private, state, federal, corporate, or other ownership).

Ownership patterns: The pattern and distribution of ownership, and the use of lands greatly affect the ability to sustain natural resources. Management options, resource demand, and ecological processes are all affected by how the land is managed, fragmented, and patterned. Successful sustainable management is dependent upon making connections across ownerships, boundaries, and landscapes.

Paradigm: An acquired way of thinking about something that shapes thoughts and actions in ways both conscious and unconscious.

Participant observer: Communication technique in which team members understand the affected interests and their values and which allows team members to see the project and its anticipated effects through the eyes of those affected.

Perturbation: Disturbance.

Potentially Affected Interests (PAI): Individuals or groups who may be affected, have something at stake or choose to become involved in a project.

Practices: On-the-ground management activities designed to achieve the targets set for indicators.

Prescribed fire: Fire set intentionally in wildlands fuels under prescribed conditions and circumstances.

Population: A group of individual organisms of the same species living in a particular area.

Presettlement: The period before the arrival and extended presence of non-native American people.

Public: A group of people sharing a common interest or common characteristic: snowmobilers, or residents of a county.

Public involvement: The use of appropriate procedures to inform the public, obtain early and continuing public participation, and consider the views of interested parties in planning and decision making.

Rare or Uncommon Natural Features: The identification and recognition of rare, unusual, or remarkable geological sites, plants, animals, or ecological communities that can make a difference between success or failure at sustaining and protecting natural systems over time.

Rare species: Species that have a limited range, or a limited number of individuals. This could include species found in very low numbers throughout their range, or species that may have rather large local populations, but only a handful of populations total.

Recreation: An activity pursued during leisure time and by free choice that provides satisfaction.

Remote sensing:

Resource assessment: The determination of the significance, importance, or value of a resource or a set of resources.

Riparian: Pertaining to or occupying areas along rivers, lakes or ponds.

Social systems: Organized communities of people or classes.

Sand dune: Ridge or hill of loose sand piled up by wind.

Seral: The stage of succession of a plant or animal community that is transitional.

Social/Cultural: The Northern Lower Peninsula is a predominately rural, but rapidly developing, region rich in natural resources. Early settlement of this region was due to resource exploitation. Current social values center on tourism, recreation, and resource extraction based on the existing natural resources. Lifestyles and values of the people of this region are strongly connected to the natural resources. Sustainability of these resources is essential to the social and cultural fabric of the region.

Spatial scale: The geographical size of a community, ecosystem, or study. Spatial scale can range from a microsite such as an underside of a leaf on the forest floor, to a forest, to a larger landscape. Operationally, spatial scale refers to the geographic extent at which certain processes operate within the environment. This could be the scale at which nutrients recycle in a wetland to the patterns of deer migration in the Upper Peninsula.

Special concern: Declining populations that is allowed to continue to decline, may be listed as threatened or endangered. Not legally protected.

Species: A group of individuals that can interbreed successfully with one another, but not with members of other groups. Plants and animals are identified as belonging to a given species based on similar morphological, genetic, and biochemical characteristics.

Species diversity: The variety of species in an area. It includes not only the number of species in the area, but also their relative abundance and spatial distribution. Species richness is one component of species diversity, but not the only determinant.

Species richness: The total number of species within an area.

Spiritual: Spiritual values are personal feelings and sentiments that natural resources stir within the human spirit. This criteria is concerned with the continued ability of the resources to provide these values. Since spiritual values are personal and primarily intangible, the indicators lean towards features of ecosystems that appeal to the senses or address the ability of people to use those resources.

Stakeholder: Individuals or groups impacted by and/or having an interest in the management of Michigan's natural resources and DNR programs. State, tribal, and local government agencies, academic institutions, the scientific community, non-governmental entities including environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners and citizens.

Statewide Council: A team composed of all the DNR Division chiefs who meet periodically to plan and discuss policy, coordination, cooperation, and implementation of Department programs.

Stewardship: Land administration that is environmentally and socially responsible to maintain and enhance natural resources and their values for present and future generations.

Stressor: Anything that causes pressure, tension or strain.

Succession: The natural replacement, in time, of one plant community with another,

Successional stage: A stage of development of a plant community as it moves from bare ground to climax.

Sustainable/Sustainability: Maintenance of healthy, functioning ecosystems capable of providing goods, services, and processes upon which human welfare ultimately depends. Also, implied is the idea that the actions of the current generation will not diminish the resources and opportunities available to future generations.

Structural complexity:

Swamp: Wetland that is covered by trees or shrubs.

Target: The desired level to be achieved by an indicator.

Taxa: A classification system.

Taxonomy: The theory, principles, and process of classifying organisms in established categories.

Temporal scale: The time required to complete a study, a life history event or ecological process. Temporal scale can vary from a few seconds for biochemical reactions to thousands of years for ecosystem development. Operationally, temporal scale refers to the time extent certain processes operate in the environment. (The apparent spatial-operational scale of an ecological process will often change as the temporal-observational scale changes in the same process).

Threatened species: A plant or animal species likely to become endangered throughout all or a significant portion of its range within the foreseeable future.

Uncommon or Rare Natural Features: The identification and recognition of rare, unusual, or remarkable geological sites, plants, animals, or ecological communities that can make a difference between success or failure at sustaining and protecting natural systems over time.

Unique features: Natural features natural features that are associated with a particular set of environmental/ecological conditions that don't occur widely.

Unanimity: Condition of being in complete agreement or accord.

Uneven age management: Actions that maintain a forest or stand of trees composed of intermingling trees that differ markedly in age.

Values: Principles, standards, or qualities considered worthwhile or desirable from a particular viewpoint.

Virgin forest: A natural forest virtually uninfluenced by human activity.

Water and Soil Conservation: This simply means wisely using and maintaining our soils and water. Soil and water are essential to sustaining life and ecosystems. Soil conservation is wisely maintaining the soils which support forests, shrublands, and grasslands. Water conservation is maintaining abundant and quality aquatic environments for plants and animals as well as providing quality water for people and wildlife.

Watershed: The entire region drained by a waterway. An area of land above a given point on a stream that contributes water to the streamflow at that point.

Wetland: Areas where the soil is wet or saturated with water for at least part of the year.

Acronyms

DBH	*Diameter (of a tree) at Breast Height (4½ feet above the ground)*
FD	*Fisheries Division of the Michigan Department of Natural Resources*
FIA	*Forest Inventory & Analysis*
FMFMD	*Forest, Mineral and Fire Management Division of the Michigan Department of Natural Resources*
FOSB	*Field Operations Services Bureau of the Michigan Department of Natural Resources*
GDP	*Gross Domestic Product*
GIS	*Geographic Information System*
GPS	*Global Positioning System*
IFMAP	*Integrated Monitoring, Assessment and Prescription*
LED	*Law Enforcement Division of the Michigan Department of Natural Resources*
LSSF	*Lake Superior State Forest*
LTA	*Land Type Association*
LTNC	*Little Traverse Nature Conservancy*
MDNR	*Michigan Department of Natural Resources*
MIPC	*Michigan Invasive Plant Council*
MIRIS	*Michigan Resource Information System*
MNFI	*Michigan Natural Features Inventory*
MSA	*Michigan Snowmobile Association*
MSP	*Michigan State Police*
NRCS	*Natural Resources Conservation Service*
OEO	*Office of Education and Outreach of the Michigan Department of Natural Resources*
OI	*Operations Inventory*
OLAF	*Office of Land and Facilities of the Michigan Department of Natural Resources*

ORV	*Off Road Vehicle*
PRB	*Parks and Recreation Bureau of the Michigan Department of Natural Resources*
RMAP	*Resource Mapping and Aerial Photography*
RNA	*Research Natural Areas*
SEV	*State Equalization Value*
SIRC	*Spatial Information Resource Center*
SSURGO	***S**oil **Sur**vey **G**e**o**graphic*
T&E	*Threatened and Endangered*
TNC	*The Nature Conservancy*
TPO	*Timber Product Output*
USFS	*United States Forest Service*
USFWS	*United States Fish and Wildlife Service*
VIGIL	*Virtual Geographic Information Library*
WLD	*Wildlife Division of the Michigan Department of Natural Resources*